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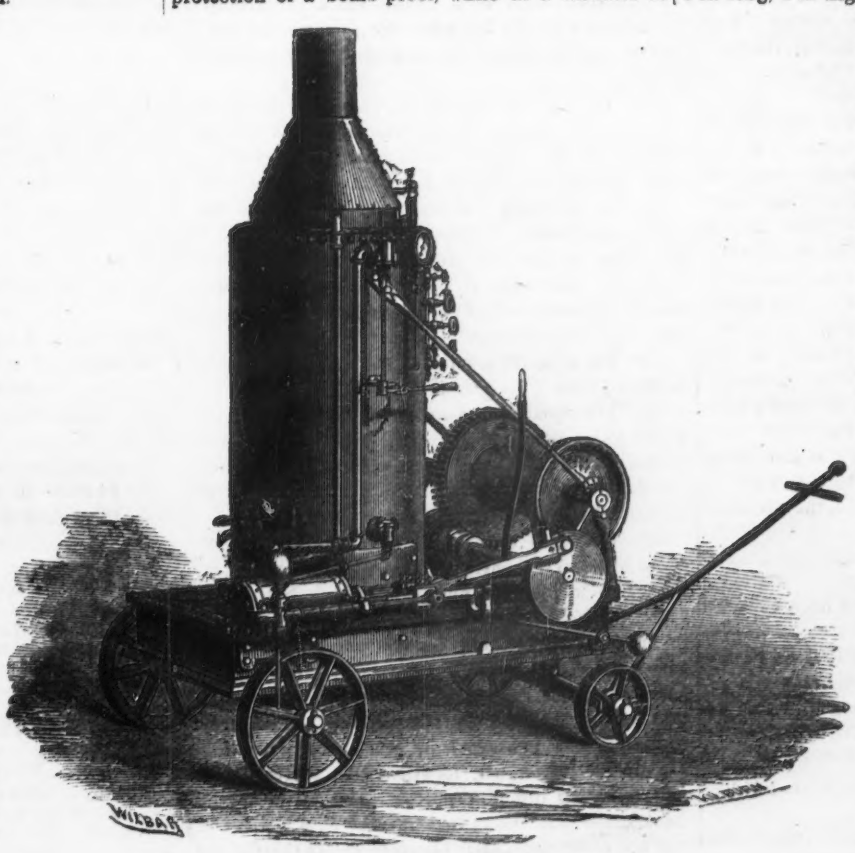
Portable Steam Engine and Hoisting Machine.

We present in this issue another of the long list of portable engines that at the present day offer themselves as candidates for public favor. The illustration is a truthful representation of the machine, and is so well drawn as to require very little explanation. The boiler, an upright tubular one, is made of the best Pennsylvania iron and of ample thickness to secure strength. The Ames Manufacturing Company make a specialty of the manufacture of portable engines, devoting to their construction all their capital and attention. All the machinery and tools are especially adapted to this class of work, and the workmen, in their manipulation of the various parts assigned to them, by constant practice have acquired precision, accuracy and skill which cannot be attained by those who are engaged on the ever-changing work of shops where various styles of engines or machines are manufactured.

The engine which we to-day illustrate is especially designed for hoisting and pile-driving, and splendidly adapted for such service, and, though very compact, these engines are made in the same style as the best stationary engines, and are intended for use as such when so desired. There are comparatively few cases, however, where they cannot be used in their portable shape as such. They are certainly more cheaply set and put in operation, occupy less space, have all the steam exhaust and water connections fitted and complete, avoid the necessity of using a long steam pipe, which increases the friction and condensation, and consequently diminishes the pressure of the steam, and causes a loss of fuel and power. They can be carefully tested and run with steam at the shop and made perfect there, which cannot be done with a stationary engine. They require no skilled machinists and masons at high wages to get them put up in running order. They require less care and attention, are more simple and compact, and less liable to derangement.



HOISTING ENGINE AND PILE DRIVER.

Every engine built by this company is run for five hours or more under full head of steam, before being sent away, and thus they are safe to guarantee every part complete, without defect, and the whole engine, boiler and hoisting apparatus to be in perfect working order.

Aside from its application, in so condensed a form, there is nothing peculiar about the engine, it being a plain slide valve reciprocating engine, which has so successfully withstood the severest tests under all kinds of circumstances since the days of WATT.

Mr. E. P. HAMPSON, No. 38 Cortlandt street, N.Y., the general Agent for the Ames Manufacturing Company, will furnish illustrated descriptive catalogues on application.

Report on Boiler Explosions.

The following is an abstract of the report, made to the Secretary of the Navy by Chief-Engineers TSHERWOOD, DE LUCE and ALBERT, U. S. N., regarding the recent experiments on the explosion of boilers, made by Mr. F. B. STEVENS at the expense of the United Railroad Companies of New Jersey. The experiments were made on the 22d and 23d days of November at the Government reservation at Sandy Hook, nine boilers of various sizes and construction having been subjected to hydrostatic tests, and suitably arranged on a well-chosen piece of ground, surrounded by a high fence. Five reliable pressure gauges were placed near each boiler, and tried under protection of a bomb-proof, while at a distance of from three to five hundred feet, two other gauges were erected and connected with the boiler. In these positions the indications of the different sets of gauges were compared and found to agree.

The first experiment was with a boiler from the steamboat *Joseph Belknap*, which had been in use for thirteen years. It is an upper-return flue-boiler, with a rectangular front, 7 ft. 8 in. long, 6 ft. 6 in. wide, and 6 ft. 11 in. high. The cylindrical shell is of ¼ inch iron, 20 ft. 4 in. long, and 6 ft. 6 in. in diameter, unbraced, single riveted, and with a flat end. The total length of the boiler is 28 feet. One hundred and twelve pounds, hydrostatic pressure, to the inch broke a few of the braces, which were repaired, and the boiler was again subjected to a hydrostatic pressure of 82 pounds to the inch and a steam-pressure of 60 pounds to the inch without damage, previous to the experiment of the 22d of November. It was intended to burst this boiler with 12 inches of water above the flues by steam pressure, but it was found impossible to raise the pressure above 93 pounds to the inch, owing to an excessive leak of steam from a seam. This pressure the boiler withstood, with but a slight change in the form of the semi-circular top of the rectangular front. This experiment was of value in showing the strength of a boiler of this construction after thirteen years service.

The next experiment was with a rectangular box, 6 ft. long, 4 ft. high, and 4 inches wide, over all. It was built to represent the flat water space, or water leg, of the *Westfield's* boiler, the plates being held together by a single row of rivets at their edges, and the box being thoroughly braced with bolts, the threads of which were screwed into corresponding threads in the side-plates, and slightly riveted on the outside. The surface of the box exposed to the fire was 19 square feet. In thirty-two minutes the pressure was raised to 165 pounds to the inch, when the box exploded with a loud report, completely demolishing the brick work in which it was enclosed. The two sides were hurled in opposite directions, and to about equal distances. Only one side-plate was fractured, and that along the whole riveted seam which joined it to the frame; but both plates were considerably bulged out, though not one of the bracing bolts was broken, nor were the threads stripped or injured, but the slight riveting over of the ends of the bolts was broken off in all of them. If these screws had been provided with nuts outside of the plates, the box would have borne a much greater pressure before it exploded; for the expansion of the iron allowed the screw threads to pass through the plates without injury.

The conclusions from this experiment are: That a gradually accumulated steam-pressure in a boiler can produce a true explosion, violently hurling its fragments, with a loud report, to a considerable distance, even though 84 per cent. of its capacity be filled with water; and that screw-bolts should not be used in boiler construction without nuts, or having, as an equivalent, a large portion of their ends formed into massive rivet-heads.

A boiler taken from the *Bordentown*, in August last, after having been in use for 25 years, was next taken in hand. At the time of its removal from the boat, an inspector's certificate allowed it to be worked at 30 pound pressure to the inch. It was a horizontal fire-tube boiler, with the tubes returned immediately above the furnace and combustion chamber. The shell of the boiler was rectangular, or nearly so, and all seams were single riveted. The width of the boiler was 12 ft. 2 in., its length 15 ft. 5 inches, and its height, exclusive of the steam-drum, was 8 ft. and 6 inches. The shell was very unequally braced, each upper horizontal brace, one and an eighth inches in diameter, sustaining a surface of 336 square inches, and each rectangular vertical brace, of two inches by one-quarter inch section, sustaining the pressure upon 228 superficial inches. The following were the grate and water heating surfaces of the boiler:

Grate surface	79 11-12	sqr ft.
Heating surface in furnace	180	" "
" " in combustion chamber etc.	103	" "
Heating surface in tubes	2171	" "
" " " uptake	64	" "
Total heating surface	2518	" "

The boiler contained 384 tubes, two inches in external diameter and 12 feet in length. Crow-feet were attached to the ends of the braces. When subjected to a hydrostatic-pressure of 60 pounds, twelve of the crow-feet gave way. These were subsequently repaired, and the boiler was again tested with 59 pounds hydrostatic-pressure and 45 pounds steam pressure, which it withstood without injury.

During the test of November 23d, wood was used as fuel, and the water in the boiler stood at 15 in. above the highest point of the tubes. Steam was raised in thirteen minutes from 29½ pounds to 53½ pounds pressure. At the pressure of 50 pounds some of the braces in the boiler gave way with a loud report and when the pressure of 53½ pounds was reached, the boiler exploded with terrific violence. The steam-drum and a portion of the shell, a mass of about three tons weight, was hurled to a great height in the air and fell to the ground at about 450 feet from the original position of the boiler, crushing several trees in its fall. Two other larger fragments fell at less distances while smaller ones were thrown much farther. Almost the whole boiler was literally torn into shreds, and only the tubes remained where the boiler had been. Both tube-plates were blown away at the same moment and in opposite directions, as was shown by the subsequent position of the plates and tubes. Most of the crow-feet however, remained firmly attached to the shell, the braces having parted, probably at the welds. The screw-bolts which braced the flat water-spaces slipped from their fastenings without injury either to their threads or to those in the plates, as was the case in the previous experiment.

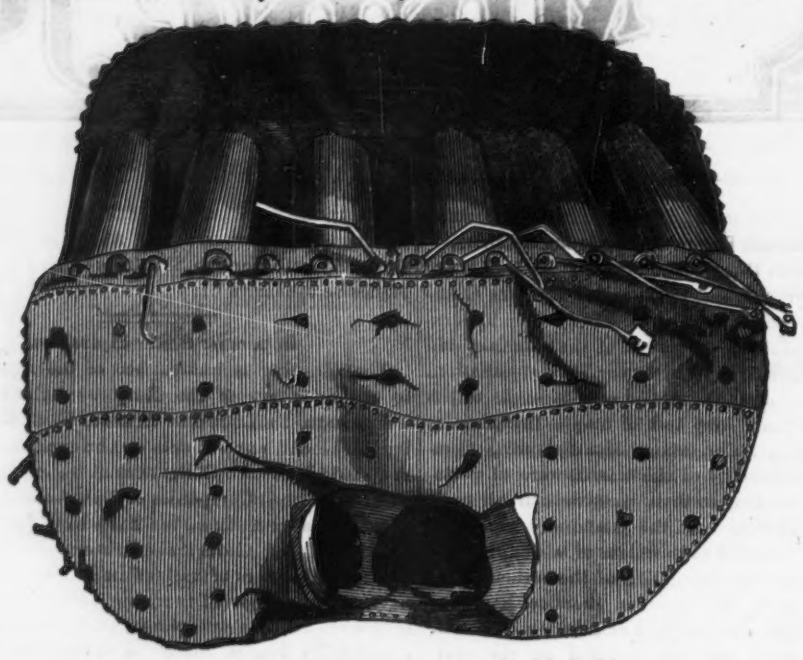
The conclusions drawn from these experiments are the following.

1st. An old boiler containing a large mass of water above the highest point of its heating surface, can be exploded with such complete destruction as to reduce it to mere debris, and hurl the fragments in all directions with a force that no building or vessel of ordinary construction could withstand.

2nd. That the pressure required for so devastating an explosion is the very moderate one of 53½ pounds per square inch.

3d. That with only a wood fire, generating a far less quantity of heat in equal time than a coal fire, there were required only thirteen minutes to raise the pressure from the Inspectors working allowance of 30 pounds to the exploding pressure of 53½ pounds per square inch, showing that a few minutes absence or neglect of the engineer, coupled with an over loaded or inoperative safety-valve, are all that are needed to produce the most destructive steam-boiler explosion, even with an old and unequally braced boiler, in which it might be supposed that a rupture of the weakest part would precede other fracture, and allow the escape of the pressure without doing further injury.

4th. That in accounting for either the fact of an explosion, or for its destructive effects, there is no necessity for hypotheses of low water, enormous pressures, instantaneous generations of immense quantities of steam, superheated steam, the formation of hypothetical gases, the development of electricity etc. etc. The most frightful catastrophe can be produced simply by gradually accumulating the pressure of saturated steam to a strain which the strength of the boiler yields, nor need the pressure be much above what is ordinarily employed with boilers of this type.



THE BOILER OF THE "WESTFIELD."

5th. There is no flashing of the boiler water into steam at the moment of the explosion. On the contrary, with the exception of the small portion of this water vaporized (after the reduction of the pressure, owing to the rupture of the boiler) by the heat contained in it, between that due to the temperature of the steam of the exploding pressure and of the atmospheric pressure, it remains unchanged, and is thrown around, drenching the objects near it, and scalding whomever it falls upon.

6th. The weakest portion of the boiler braces was in their welds.

7th. The equal stretching in all directions of the boiler-plates between the screw-bolts, due to their bulging under pressure, was sufficient to permit the slipping out of the bolts, without injury to the threads either upon them or in the plates.

8th. That this experiment has conclusively disposed of several theories of boiler explosion, replacing vague conjecture and crude hypothesis with exact experimental facts, and, by thus narrowing the field for the search of truth, has made its discovery more probable.

The annexed engraving, representing the condition of the boiler of the steamer *Westfield* after its explosion, was published in the *Manufacturer and Builder* for September, together with several other cuts, showing different portions and views of the same boiler. It shows that in that case the boiler was not more completely blown to pieces than in the case of the Sandy Hook explosion; yet this disaster has been confidently quoted as proving that to some agency other than steam were due the fearful effects, and the supposed tremendous pressure under which the boiler exploded.

Polytechnic Association of the American Institute.

Meeting held December 15, 1871, at the rooms of the association, in the Cooper Institute.

The PRESIDENT read notes of scientific progress, which elicited discussion.

EXPLOSION OF STEAM BOILERS.

The PRESIDENT—In the paper of Judge Hayes, read at our last meeting, the explosion of steam boilers is ascribed to electrical influences. He asserts that the evaporation of water produces electricity; but he does not give any reason why the electricity should remain in a metallic boiler having metallic connections with the earth. In the next place, he believes that the water is decomposed, that the gases are mixed inside the boiler, and that they are fired by the electric current. Steam discharged from a boiler will produce frictional electricity; but we have no evidence of the existence of electricity within a boiler.

Dr. VAN DER WEYDE—The idea of electricity in the boiler has given rise to a patent for a lightning rod inside of the boiler. On the end of the rod magnets were placed, not only to prevent the boiler from exploding, but to prevent scale from forming. Another inventor put a copper plate in the boiler, so that the scale should form on this plate instead of on the iron shell; but it made such galvanic action that the boiler corroded at a fearful rate. I have put steel points in a boiler, but the result was negative.

Mr. HUDSON—It would be reasonable to infer from the argument that the electricity developed in a boiler is part of its working power; so that withdrawing that electricity by lightning rods, or otherwise, takes away part of the power.

Dr. PARMLY—It would be easy to attach a galvanometer to an insulated rod inside of a boiler and test it. If we can get a spark in that way, we shall have something to work upon.

Dr. VAN DER WEYDE—I thank the gentleman for the suggestion. I have now in Philadelphia four or five boilers in which that can be easily tried. If there is electricity there the galvanometer will show it.

The PRESIDENT—The boiler might be entirely insulated, and then if any quantity of electricity is generated it must escape through the wire and manifest itself.

Dr. VAN DER WEYDE—The theory that the gases are ignited by electricity is absurd. The presence of the gases in the boiler can be easily tested. We have only to draw steam, and see if it will all condense into water. There may be a little air mixed with it; but if there should be an explosive mixture left after condensation it would settle that question.

Professor THURSTON—I understand that Judge Hayes bases his whole argument upon the supposition that the pressure of steam could not cause the destructive violence witnessed in explosions. The report lying on your table, to the Secretary of the Navy, written by Mr. Isherwood, will sufficiently show whether that supposition is correct.

Professor THURSTON then read the report, an abstract of which will be found elsewhere, and remarked—To the conclusions contained in this report, I would add:

9. That a boiler may explode at a pressure lower than the hydrostatic test to which it has been subjected. Adjourned.

THE COAL TRADE.

B. R. WESTERN, COAL EDITOR.

Anthracite Coals.

NEW YORK, Dec. 21, 1871.

WHOLESALE. There has, we think, been a little improvement in the trade this week, as compared with last, probably owing to the very cold weather, which, at the present writing, would seem likely to be of some duration. Such extreme weather, however, as we have had during the past few days, interferes with our city retail trade, the streets being kept in an almost impassible condition for heavily laden carts of coal by the snow. It is also very difficult to unload coal during such cold weather, and business has been more or less impeded from that cause. Notwithstanding the improvement noted the stock at this point is fast accumulating; and much coal is being sold at low figures. We learned of cargoes of good grades being sold as low as $5 75 for stove in carts, when the circular price is $5 50 at Hoboken, Port Johnson, or Weehawken, and as 50 cents per ton would not much more than pay the freight, insurance, towage and hoisting, $5 75 is certainly a very low figure. Yet we cannot see how better prices can be expected while the Pittston Company are retailing coal at $5 25 for grate and egg, and $5 75 for stove.

The Scranton auction sale for December is announced this week in our advertising columns. One hundred and twenty thousand tons are offered—twenty thousand more than last month. This increase is also an indication of the accumulation of stock. The opinion of the trade is divided as to what prices it will bring, though most dealers incline to the idea that last month's rates will be realized.

The question of the "strike," heretofore noted in our columns, as imminent, has not as yet taken any definite form. We understand that the Wilkesbarre Coal and Iron Company have notified their men that on and after January 1, 1872, their wages would be reduced to the same prices as are being paid by the other large companies in the northern coal fields. It will be remembered that at the settlement made in closing the "last great strike" (1870) this Company was the first to give way to their men, and gave their men better terms than the other companies. They now ask to be put at least on a level with their competitors in order to have an equal chance in the markets. It is understood that these "terms" are not for the whole year 1872, but if the other companies reduce wages, this company will expect to again require an agreeable reduction from their men.

As we before remarked, there seems to be no movement to a new order of things for the next year by those in the trade who generally take these matters in hand. If there is, we are in the dark about it, and all the "pumping" we are capable of does not bring forth any of the mysteries.

FREIGHTS.—Vessels are in a better supply than last week. Rates do not, however, come down. We quote: Boston, $3 to $3 25; New Haven, $1 10; Bridgeport $1 10.

Bituminous Coal Trade, 1870 and 1871.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending Dec. 16, 1871, compared with week ending Dec. 17, 1870.

COMPANIES.	1870. Week.	1870. Year.	1871. Week.	1871. Year.
C. & O. Canal	654	520,197	....	653,420
B. & O. R. R.	23,148	864,682	22,179	1,191,001
H. & B. T. R. R.	7,562	301,946	6,971	310,814
*Harrisburg & D.	....	680,791	....	742,424
*L. V. R. R.	....	13,847	....	355,096
P. & N.Y.C. & R. Co.	....	239,669	....	....
Cumberl'd Branch Canal	....	84 238	....	194,253
" Railroad	818	111,988	1,586	70,542
Total	32,182	2,817,349	50,736	3,517,550
	30,736			2,817,345
Decrease	1,446			
Increase				700,205

The tonnage of the P. & N. Y. C. & R. R. Co. is included in that of the L. V. R.R. Co

Schuylkill Canal.

Report of coal transported over the Schuylkill Canal for the week ending Saturday, Dec. 16, 1871.

	Tons. Cwt.
From Port Carbon	— —
" Pottsville	— —
" Schuylkill Haven	1,955 08
" Port Clinton	— —
Total for week	1,955 08
Previously this year	10,378 12
Total	12,334 00
To same time last year	33,248 09

Anthracite Coal Trade for 1870 and 1871.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending Dec. 16, 1871, compared with the week ending Dec. 17, 1870

COMPANIES.	1870. WEEK.	1870. TOTAL.	1871. WEEK.	1871. TOTAL.
*Phila & Reading R.R†	....	2,984,263	....	3,659,436
*Schuylkill Canal	....	560,685	....	1,010,171
*Lehigh Valley R. R.	....	2,810,020	....	2,210,272
Lehigh & Sus. R. R.	39,024	1,047,841	34,475	1,267,560
Lehigh Canal	....	761,239	....	740,636
Scranton North	1,064	666,918	9,961	535,355
" South	964	1,677,522	52 319	1,267,918
Penn. Coal Co., rail	1,255	1,068,868	16,262	751,582
" " canal	....	16,603	....	13,962
Del. & Hud. Canal Co.	....	1,292,675	....	991,825
" " East	8,552	440,042	6 800	334,092
" " West	436	83,244	203	112,188
South	3,475	419,122	7,231	326,590
Shamokin	9,676	474,106	9,768	614,824
Trevorton	....	67,371	....	....
Lykens Valley Coal Co.	....	67,774	....	91,074
Wyoming South	....	326,645	....	....
Wyoming North	....	....	....	4,167
P. N. Y. C. & R. R. Co.	....	276,151	....	104,987
Williamstown Col'y	3,281	289,841	....	....
Big Lick Col.	....	88,990	....	142,485
Total	67,726	15,439,802	136,099	14,179,114
1870		14,179,114	67,726	
Decrease		1,260,688		
Increase			68,313	

* These figures are for the week and fiscal period ending Nov. 30. See tables below for tonnage since Dec. 1.

† Less coal transported for Co's use and Bituminous coal.

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Sus. Div.)

Week ending Dec. 16—Compared with same time last year.

WHERE SHIPPED FROM	WEEK 1871., tons ct.	WEEK 1870. tons ct.	YEAR 1871 tons cwt.	YEAR 1870, tons. cwt.
Wyoming Region	22202 11	27161 18	1257266 09	1215696 06
Upper Lehigh Region	3277 04	3904 13	104096 12	150292 06
Beaver Meadow Region				
Hazleton Region	510 15	991 05	212892 16	318672 13
Mahanoy Region				
Tresckow Region	2514 16		79487 12	
Mauch Chunk Region	11182 01	10179 12	232608 05	137601 17
Totals	39687 07	42237 08	1886951 14	1822263 02
Increase	2550 01		64688 12	
Decrease				
DISTRIBUTION.				
Forwarded East of Mch Chunk by Rail	34474 15	39024 09	1267559 15	1047841 06
Forwarded East of Mch Chunk by Canal	97 07	738 14	420246 13	529036 09
Delivered at and above Mauch Chunk	1992 16	2064 06	67635 01	46552 16
Delivered to L. & B. R. R. at Plymouth Bridge	2855 08	5 05	102831 03	184266 17
L. V. R. R at Packer'n	267 01	404 14	28679 02	24665 14
Totals	39687 07	42237 08	1886361 14	1822263 02
Of the above there was transported on acc'nt of L. C. & I. Co.	13453 15	13121 12	341566 03	191042 04
W.-B. C. & I. Co.	15401 19	21930 02	838960 04	621257 08
Totals	28855 14	35051 14	1180516 07	812299 12
Increase			368216 15	
Decrease	6195 00			

Lehigh Coal and Navigation Company,

Report of Coal transported over the Lehigh Canal and L. & S. Div. of Central Railroad of New Jersey for the week ending Dec. 16, 1871, and for the year 1871.

	WEEK.	YEAR.
Forwarded East of Mauch Chunk by Rail	34,474	1,267,559
Delivered at and above do.,	1,992	67,635
Forwarded East of do., by Canal	....	740,636
	36,467	2,075,830
Corresponding period last year—		
Forwarded East of Mauch Chunk by Rail	39,024	1,047,841
Delivered at and above do.,	2,064	46,552
Forwarded East of do., by Canal	733	789,111
	41,822	1,883,505
Increase on Railroad		240,860
Decrease " "	4,621	
Increase on Canal		
Decrease " "	733	48,475
Of the above there was transported on account of—		
Lehigh Coal Nav. Co	13,453	604,345
Wilkesbarre Coal & Iron Co	15,401	838,950
	28,855	1,443,295
Corresponding period last year—		
Lehigh Coal Nav. Co	13,121	301,711
Wilkesbarre Coal & Iron Co	21,930	621,257
	35,051	922,969
Increase		520,326
Decrease	6,196	

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, Dec. 16, 1871.

	WEEK.	SEASON.
North	42,610 19	1,584,631 17
South	7,231 04	326,590 02
Total 1871	49,842 03	1,911,281 19
Corresponding time in 1870:		
North	291 00	1,931,038 11
South	3,475 13	419,122 11
Total	3,766 13	2,350,161 02
Increase North	42,319 19	
Decrease North		346,346 14
Increase South	3,755 11	
Decrease South		92,532 09
Total increase 1871	46,075 10	
Total increase 1871		438,879 03

Delaware and Hudson Canal Company.

The following is a statement of Coal Transpo ted by the Delaware and Hudson Canal Co. for the week ending Dec. 16, 1871.

	FOR THE WEEK.	FOR THE SEASON.
By Delaware and Hudson Canal,	.....	991,825
By Railroad, East	6,800	334,092
" " West	203	112,188
" " South	7,231	326,590
Total Tons	14,234	1,764,695

For the same period last year.

	FOR THE WEEK.	FOR THE SEASON.
By Delaware and Hudson Canal,		1,292,675
By Railroad, East	8,552	440,042
" " West	436	83,244
" " South	3,475	419,122
Total Tons	12,463	2,235,083
Decrease	470,388	

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, December 16, 1871.

BY RAILROAD.—ANTHRACITE.

PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.

	Tons.	Cwt.
From St. Clair	43,719	01
" Port Carbon	4,983	04
" Pottsville	696	15
" Schuylkill Haven	6,040	07
" Pine Grove	2,226	09
" Tamaqua	8,625	00
" Harrisburg		
" Dauphin	3,353	17
Total	69,627	13

FOR SHIPMENT BY CANAL.

Passing Frackville Scales	36	14
" Mill Creek "	.....	
" Schuylkill Valley Scales		
" Mt. Carbon "		
" Oressona "	.....	
" Pine Grove "		
" Tamaqua "	.....	
Total	36	14

SHIPPED WESTWARD VIA NORTHERN CENTRAL RAILROAD.

Passing Locust Gap	1,112	02
" Shamokin	4,090	13
" Herndon	.....	
Total	5,202	15

SHIPPED WEST OR SOUTH FROM PINE GROVE.

Via Schuylkill & Susquehanna R. R.	1,369	03
" Lebanon & Pine Grove Branch	1,589	07
Total	2,958	10

CONSUMED ON LATERALS.

From Frackville Scales	1,132	15
" Mill Creek "	694	19
" Schuylkill Valley Scales	61	16
" Mt. Carbon "	585	15
" Oressona "	580	02
" Pine Grove "	245	06
" Tamaqua "	447	17
Total	3,751	10

LEHIGH AND WYOMING COAL.

Received via Allentown, E. Penn's Br.	250	07
" " Alburtis, "	.....	
" " Oreland, G. & N. Br.	1,291	10
" " Connecting R. R.	.....	
" " Willow Street R. R.	103	02
Total	1,644	19

BITUMINOUS.

From Harrisburg	8,964	06
" Connecting R. R., G. & N. Br.		
" Junction R. R.	212	15
Total	9,177	01

COAL FOR COMPANY'S USE.

Anthracite	6,500	09
Bituminous	161	12
Total	6,662	01

RECAPITULATION

	Total for Week.	Cor. week last year.	Increase & Decrease.
Passing over Main Line and Leb. Val. Branch	69,627 13	74,949 08	d 5,321 15
For Shipment by Canal	36 14	3,081 16	d 3,045 02
Shipped Westward via Northern Central R. R.	5,202 15	5,952 07	d 749 12
Shipped West or South from Pine Grove	2,958 10	2,022 10	i 936 00
Consumed on Laterals	3,751 10	3,501 02	i 250 08
Lehigh and Wyoming Coal	1,644 19	1,942 10	d 297 11
Total Anthracite paying fr'gt	83,222 01	91,449 13	d 8,227 12
Bituminous	9,177 01	9,915 13	d 738 12
Total of all kinds paying fr'gt	92,399 02	101,365 06	d 8,966 04
Coal for Company's use	6,662 01	3,206 16	i 3,455 15
Total Tonnage for Week	99,061 03	104,572 02	d 5,510 19
Previously this year	124,923 02	140,103 12	d 15,180 10
Total to date	223,984 05	244,675 14	d 20,691 09

SHIPPED BY CANAL.

From Schuylkill Haven	1,955 08	5,690 04	d 3,734 16
" Port Clinton		340 00	d 340 00
Total Tonnage per Week	1,955 08	6,030 04	d 4,074 16
Previously this year	10,378 12	29,440 09	d 19,061 17
Total to date	12,334 00	35,470 13	d 23,136 13

Huntington and Broad Top R. R. Co.

For week ending Dec. 16, 1871	6,971 tons.
Same time last year	7,562 "
Increase	....
Decrease	591 "
Total amount shipped to date	310,814 "
Same time last year	301,946 "
Increase	8,868 "
Decrease	

Delaware Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna and Western R. R. for week ending Dec. 18, 1871.

	Week. Tons. Cwt.	Year. Tons. Cwt.
Shipped North	2,961 07	535,355 01
Shipped South	52,318 12	1,267,918 07
Total	62,279 19	1,803,273 08
For the corresponding time last year:		
Shipped North	1,063 13	666,917 16
Shipped South	963 17	1,677,521 18
Total	2,030 10	2,344,438 14
Increase	60,249 09	
Decrease		541,165 06

Shamokin Coal Trade.

For week ending December 16, 1871	9,767 19
Same time last year	9,674 13
Increase	93 06
Decrease	
Total amount shipped to date	614,223 17
Same time last year	474,107 14
Increase	140,716 03
Decrease	

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending Dec. 16, 1871.

	1871. WEEK.	1871. YEAR.	1870. WEEK.	1870. YEAR.
By Railway	15,282 00	751,542 04	1,255 07	1,068,868 07
" Canal		13,962 04		16,602 18
Total	15,282 00	765,544 08	1,255 07	1,085,471 05
Decrease 1871, 319,926 17				

Statement of Coal Transported over Cumberland and Pennsylvania Railroad,

During the week ending Saturday (Dec. 16, and during the year 1871, compared with the corresponding period of 1870.

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B.&O.R.R. Co Tons Cwt.	Total. Tons. Cwt.
1871	.....	22,178 11	22,178 11
1870	654 06	23,148 00	23,802 06
Increase			
Decrease	654 06	969 09	1,623 15

YEAR.

1871	651,420 02	1,191,000 15	1,844,420 17
1870	520,196 16	864,681 12	1,384,878 08
Increase	133,223 06	326,319 03	459,542 09
Decrease			

Cumberland Branch

WEEK.

	To C.& O. Canal Tons. Cwt.	To B.&O. R.R. C. Tons. Cwt	Total. Tons Cwt.
1871	.....	1,585 16	1,585 16
1870	.....	817 17	817 17
Increase		767 19	767 19
Decrease	.....		

YEAR.

1871	194,253 07	70,541 13	264,795 00
1870	84,238 05	111,988 05	196,226 10
Increase	110,015 02		68,568 10
Decrease		41,446 12	

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

	AT NEW YORK. Dec. 23. R. A.	W. A.	AT PHILADELPHIA. Dec. 22. R. A.	W. A.
SCHUYLKILL.				
Lump	$—	$—	— —	— —
Steamer	4 50	— —	— —	— — 4 50
Broken	4 50	— —	— —	— — — —
Egg	— —	— —	5 00	— — 4 75
Stove	5 00	— —	5 00	— — 5 00
Chestnut	4 25	— —	— —	— —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump, (along side)	5 50	——	— —	— —
Broken	5 50	— —	— —	— —
Egg	5 50	— —	— —	— —
Stove	6 00	— —	— —	— —
Chestnut	5 00	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 6 00@6 25		— —	— —
New England	" —		— —	— —
Locust Mountain	W. A. 6 50		— —	— —
Honey Brook, Le'h	W. A. 5 00@6 00		— —	— —
Spring Mountain	" " 5 00@6 00		— —	— —
Sugar Creek	" " 5 00@6 00		— —	— —
Sugar Loaf	" " 5 00@6 00		— —	— —
Old Comp'y's	" " 5 00@6 00		— —	— —
Cross Creek	" " 5 00@6 00		— —	— —
Room Run	" " 5 00@6 00		— —	— —
Girardville	" " —		— —	— —
McMichael	" " — —		— —	— —
Shamokin	" " 5 25		— —	— —
Lykens Valley	" " 5 75		— —	— —
Broad Top	" " 5 25		— —	— —
Hill & Harris	" " — —		— —	— —
Henry Clay	" " — —		— —	— —
Powelton	" 5 25		— —	— —

*Dealers in these coals may be found in our advertising columns.

Company Coals.

Dec. 1871.

	L.	Str.	Gra.	Eg.	Sto	Chest
*Scranton at E. Port	— —	— —	— —	— —	— —	— —
*Pittston at Weehawken	4 60	4 60	4 80	4 90	5 20	4 60
*Lackawana at Weehawken	4 60	4 60	4 80	4 90	5 20	4 60
Wilk'b're at Hoboken	4 00	4 00	4 50	4 60	5 50	5 40
Old Co. Lehigh at Pt John'n	5 00	—	5 00	5 00	5 50	4 50
Lehigh at Eliz. Port	5 00	—	5 00	5 00	5 50	4 50

For freights to different points see "Freights."

* To contractors.

Line Prices for Coal Dec, 1871,

	Lump	Broken	Egg	Stove	Chest't
At Mauch Chunk	4.00	4.00	4.00	4.25	3.00
" Wilkesbarre	3 75	3.75	3.75	4.00	3.00

Prices at Baltimore—DEC., 1871.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 60@5 85
Pittston and Plymouth, do	— —@5 60
Shamokin Red or White Ash, do	— —@5 60
Lykens Valley Red Ash, do	— —@5 30
Zerba Valley	— —@— —
Trevorton	— —@— —
By retail, all kinds per ton of 2240 lbs	7 00@8 25
Georges Creek & Cumberland f. o. b. at Locust Point for cargoes	— —@4 50
Fairmount and Clarksburg gas, f. c. b. at L. Point	6 00@6 50
BITUMINOUS COALS.	
Kittaning Coal Co.'s Phœnix Vein f.o.b. at Phila	$ —
Lemon " " "	—
Cumberland Vein Coal	—
Consolidation Coal Co.'s on board N. Y.	6 75
Maryland Coal Co. " "	6 75

Prices at Georget'n, D.C., & Alexandria, Va.

Dec, 1871.

George's Creek and Cumberland f. o. b. for shipping	$4 35@4 05

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$5 25@5 50
Lykens Valley	6 25@6 50
Shamokin Red or White Ash	5 50@5 75
Trevorton and Zerba Valley	— —@—

Prices of Gas Coals.

Dec, 1871.

PROVINCIAL.

Corrected weekly by Louis J. Belloni, Jr., 41-43 Pine st., N. Y

Duty, $1 25, gold

	Coarse	Slack.
Block House	$1 75 @-1 75	
Gowrie	1 75 @-1 75	

Corrected by Bird, Perkins & Job, 86 South street.

	Coarse.	Culm of Coal
Pictou	$2 25	@1 25
Sydney	2 25	@- 80
Lingan	1 60	@- 80
Little Glace Bay	1 60	@1 00
Caledonia	1 60	@- 80

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty $1 25 per ton, gold, on the coarse coal. 25 per cent. ad valorem on the Culm of Coal.

AMERICAN.

	Currency.
Westmoreland	$7 00 @- —
Fairmount Gas Coal Co. of N. Y.	7 00 @- —
Despard Coal Co.	7 00 @- —
Penn	7 00 @- —
Newburg Orrel Gas	- — @- —
West Fairmount Gas Coal	7 00 @- —
AT PHILADELPHIA.	
Powelton	$6 75
TO NEW YORK.	
Provincial	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 37½
Port Caledonia	3 37½
Little Glace Bay	3 25

Prices of Foreign Coals.

Dec, 1871.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, N. Y.

Liverpool Gas Caking	$ 8 00@— —
" Cannel	10 50@12 00
" House	— —@16 00
" Orrel	12 00@14 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@17 50
" Cannel, "	18 00@20 00

Per ton 2,000 lbs. delivered.

Freights.—Dec. 1871,

TO EASTERN PORTS.	Cumberland. From Georgetown.	Cumberland. From Baltimore.	Anthracite. From Philad'a.	Anthracite. From East Port, Port Johnson, and Hoboken.	Anthracite. From Newburg.	Anthracite. From Rondout.
Amesbury			$2 50	$1 95		
Bangor	$2 75		2 25	2 00		
Bath	2 75	2 65	2 35	— —		
Boston	2 60	2 60	2 25	3 00		
Bridgeport	2 25	2 30		1 10		
Bristol		2 60		1 50		
Cambridgeport			2 35	3 30		
Derby				1 25		
Dighton	2 30	2 35		— —		
East Cambridge				3 20		
Fall River	2 25	2 30		1 50		
Hackensack				140		
Hartford	2 75	3 00	2 40	2 00		
Jersey City		2 50		65		
Middletown				1 25		
Mystic				1 30		
New Bedford	2 50	2 35	2 00	2 25		
Newburyport	2 75			3 00		
New Haven	2 25	2 30		1 10		
New London	2 25	2 30	1 95	1 35		
Newport				1 50		
New York	2 00	1 90	1 40	55		
Norwalk		2 30		1 10		
Norwich	2 25	2 30		1 45		
Pawtucket	2 50	2 50	2 15	1 80		
Portland	2 50	2 60	2 40	1 70		
Portsmouth, N. H	2 75	2 75		3 00		
Providence	2 25	2 30	2 00	1 50		
Rockport						
Saco	2 75		2 65	— —		
Sag Harbor				1 20		
Salem	2 60	2 65	2 25	3 00		
Stamford				1 10		
Stonington				1 25		
Taunton				2 00		
Warren				1 00		
Washington				1 25		
TO RIVER PORTS.						
Albany						
Catskill						
Cocksackie						
Cooyman's						
Cold Spring						
Fishkill						
Haverstraw						
Hudson						
New York						
Nyack						
Poughkeepsie						
Rhinebeck						
Rondout						
Saugerties						
Sing Sing						
Stuyvesant						
Tarrytown						
Troy						
West Point						
Yonkers						

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven for consumption	$2 10
For reshipment	2 00

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 92
C. R. R., N. J., Phillipsburgh to Elizabethport	1 86
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$3 15

MAUCH CHUNK TO PORT JOHNSON.

L. V. R.R., or L. & S. R.R. from M. C. to Phillipsb'g	$0 92
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 88
Shipping expenses	25
Wharfage	10
Total	$2 15

TO HOBOKEN.

L. V. R. R., Mauch Chunk to Phillipsburgh	$ 92
Morris & Essex R. R. Phillipsburgh to Hoboken	1 88
Shipping expenses	20
Wharfage	15
Total	$2 15

TO SOUTH AMBOY.

L. V. R. R.	92
B. & D. R. R. / Cam. & Am. R. R.	1 81
Shipping Expenses	35
Total	$2 08

PENN HAVEN TO ELIZABETHPORT.

L. V. R R. Penn Haven to Phillipsburgh	90
C. RR. of N. J. Philipsburgh to Elizabethport	1 26
Shipping expenses	25
Wharfage	10
Total	$ 2 51

MARKET REVIEW.

FOR THE WEEK ENDING DEC. 23, 1871.

IRON.—The market for Scotch Pig continues light, but the supply is moderate, and prices are supported. 150 tons Langloan sold at $33, and 370 do. Eglinton, ex ship, on private terms. American is still neglected, and prices have a downward tendency, we quote nominal y No. 1 $36 and No. 2 $34@35. There has been very little demand for new rails, but prices are without change; 1000 tons old Double headed sold at Philadelphia on private terms. The market for Bar continues firm and steady at late advanced figures. Black Sheets are also steady and firm. Russia Sheet is lower, sales of sound having been made at 15½@16½ cents, as to numbers, gold—15½@16 is asked for a regular assortment.

COPPER.—New Sheathing is firm at 34 cents, and Bolts and Braziers 36, Bronze and Yellow Metal Sheathing 24, and Y. M. Bolts 26, net cash. Ingot is less active, but the advanced prices are well sustained for cash lots, while for future delivery higher rates have been paid; the transactions embrace about 500,000 lb. Lake at 26¾@27 cents cash, and 27½@28 for January, February and March delivery. Old Copper is scarce, and ranges from 25½ to 26½ cents. 7000 lb. old Composition sold at 23 cents.

LEAD.—A cable despatch from London was received yesterday, advising an advance there in the price of common Pig of £1 per ton. The market here remains very quiet, though the above intelligence inspires holders with more confidence. Bar 9¼ cents, Sheet and Pipe 10½, and Tin-lined Pipe 15, less 10 per cent. to the trade.

SPELTER — Remains quiet, but prices are firm for Foreign at 6¾@7 cents gold, as to brand.

STEEL.—There is no change to note in store prices.

TIN.—Since the considerable movement in Pig noted in our last, the market has been quiet. Telegrams from abroad advise sustained prices in the foreign markets, and holders here remain firm. We have but to notice sales of Straits, in lots of 50 and 100 pigs, at 38½ cents, which may be called the market price for parcels on the spot and to arrive, Banca is nominally 43 and English 38 cents, all gold. Plates have also become comparatively quiet, but prices are quite steady and firm: sales have been made of 750 bxs. Assorted Charcoal Tin at $9.25 for I. C.; 500 do. one-third X. and extras, $9.37½ for for I. C.; 300 do. I. C. Coke, 14 by 20, $8.25; and 500 do. Charcoal Terne, to arrive, $8,62½, all gold.

ZINC—There is yet no Mosselmann offering from agents' hands—nominal price 9¼ cents, less 4 per cent. gold. but from store we quote 10½@11¼ cents, currency. Manganese black oxide 3½c. Manganese Pyrolusite, 5c.

METALS.

NEW YORK, Dec. 16, 1871.

IRON.—Duty: Bars, 1 to 1½ cents ℔ lb; Railroad, 70 cents ℔ 100 lbs.; Boiler and Plate, 1½ cents ℔ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ℔ lb; Pig, $7 ℔ ton; Polished Sheet, 3 cts. ℔ lb; Galvanized 2½; Scrap Cast, $6; Wrought, $8 per ton.

	Store P'rices
Pig, Scotch No. 1, ℔ ton	33 50@38 00
Pig, American, No. 1	36 00@— —
Pig, American, No. 2	34 00@35 00
Pig, American, Forge	33 00@34 00
Bar Refined, English and American	— —@86 00
Bar Swedes, assorted sizes (gold)	95 00@100 00

	Store Prices, Cash.
Bar, Swedes	107 50@120
Bar, Refined, ord'y sizes	90 00@— —
Bar, Refined, 1½ to 6 by ¼ @ 5-16 inch	— —@ 95 00
Bar, Refined, 1 & 1¼ by ¼ & 5-16	— —@ 97 50
Bar, Refined, 2½ to 3 Round & Square	— —@ 97 50
Scroll	107 50@137 50
Ovals and half-round	107 50@125 00
Band	— —@102 50
Horse Shoe	105 00@115 00
Rods, ⅜ to 3-16 inch	25 90@130 00
Hoop	112 50@160 00
Nail rod	6¾@ — —
Sheet, Russia, as to assortment (gold)	15¾@ 16
Sheet, Single, D. and T. Common	—5¾@— 6
Sheet, D. and T. Charcoal	— 6 @— 6¾
Sheet, Galv'd, Nos. 14 to 26 27½ to 30 ct. dis.	12@14c lb.
" " Nos. 27, 28, and 29 27½ to 30 ct. dis.	15@18c lb.
Rails, English (gold), ℔ ton	57 00 @59 00
Rails, American, at Works in Pa	70 00 @71 00

COPPER.—Duty: Pig, Bar, and Ingot, 5 ; old Copper 4 cents ℔ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ℔ lb	— @— 34
Copper Bolts	— @— 36
Copper Braziers, 16oz. and over	— @— 36
Copper Nails	— @— 40
Copper, Old Sheathing, &c. mixed lots	25½@— 26
Copper, Old, for chemical purposes, 14@16 oz	— @— —
Copper, American Ingot	26¾@— 27
Yellow Metal, New Sheathing & Bronze	— @— 24
Yellow Metal Bolts	26 @— —
Yellow Metal Nails	— @— 24

LEAD.—Duty: Pig, $2 ℔ 100 lbs.; old Lead, 1½ cents ℔ lb: Pipe and Sheet, 2½ cents ℔ lb.

Galena, ℔ 100 lbs	$— @— —
Spanish (gold)	5 80 @5 90
German, do.	5 80 @5 90
English do.	5 90 @6 25
Bar (net)	9 25 @ —
Pipe (net)	— — @10 25
Sheet	— — @10 25

Colwell, Shaw & Willard Tin-Lined Lead Pipe 15 cts. ℔ lb.

STEEL.—Duty: Bars and ingots, valued at 7 cents ℔ lb or under, 2¼ cents; over 7 cents and not above 11, 3 cents ℔ lb ; over 11 cents, 3½ cents ℔ lb. and 10 ℔ cent ad val. (Store prices.

English Cast (2d and 1st quality) ℔ lb	— 15 @— 18
English Spring (2d and 1st quality)	— 7 @— 10
English Blister (2d and 1st quality)	— 10 @— 17
English Machinery	— 11 @— 13
English German (2d and 1st quality)	— 10½@— 12
American Blister "Black Diamond"	— — @— 12
American, Cast, Tool do.	— 15 @— 16
American, Spring, do.	— 9 @— 11
American Machinery, do.	— 9 @— 10
American German, do.	— 9 @— 11

TIN.—Duty: Pig, Bars, and Blocks, 15 ℔ cent. ad val.; Plate and Sheets and Terne Plates, 25 ℔ cent. ; Roofing 25. ad val.

	Gold ℔ lb.
Banca	— @43
Straits	38¼@—
English	38 @—

PLATES.

Fair to Good Brands.	Gold.	Currency.
I. C. Charcoal, ℔ box	$9 00 @9 50	$10 25 @11 00
I.C. Coke	8 25 @8.75	9 25 @10 25
Coke Terne	7 00 @8 00	8 00 @ 9 25
Charcoal Terne	8 25 @8 50	9 50 @10 25

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100 lb

Plates, Foreign (gold) p. 100 lb.	6 62½@ 7 10
Plates, Domestic p. lb.	— 7 @— 11

ZINC.—Duty : Pig or Block, $1.50 per 100 lb.; Sheet 2½c per lb

Sheet per lb.— 10½@—11½

San Francisco Stock Market.

BY TELEGRAPH.

Our report of San Francisco Stocks and the Mining Board were crowded out of our last issue; the following report from the San Francisco Stock Board, is dated the 14th inst, The market has materially advanced compared with the report of the 12th inst., and is firm and active—Crown Point, on the 12th inst. sold at $390—Gould & Curry stood on the list of the same date at $118—Belcher is up again to $393—Kentucky following at a slower pace $165, yet that is probably as strong a gait as Kentuck will bear this weather. Eureka, 9. V., does not seem to experience any sposmodical upward turn, as many of its neighbors can from their own experience testify to have been the case with them, before being thoroughly initiated into the mysterious manipulations of the Bulls and Bears of the Pacific coast.

Savage	48
Yellow Jacket	60½
Kentuck	165
Chollar Potosi	38
Gould & Curry	No Sales.
Belcher	393
Crown Point	No Sales.
Raymond & Ely	..
Imperial	41
Amador	..
Eureka C. V.	25
Meadow Valley	..

Mining Stocks.

Mining Stocks are weak. Gregory, Grass-Valley and Quartz Hill are the prominent features in the decline list. No gales have occurred since our last; the report of the Board is as follows:

GOLD STOCKS.

	BID.	ASKED
American Flag	—	20
Bates & Baxter	25	—
Benton	—	—
Black Hawk	—	50
Central Gold	—	5
Cons Gregory	—	25
Grass Valley	2	6
Gunnell	—	—
Holman	—	—
La Crosse	12	16
Liberty	—	—
Mariposa prf	—	—
Montana	—	—
Rocky Mount	—	5
Quartz Hill	—	12
Smith & Parmlee	—	20
N. Y. & Eldorado	—	—

With the exception of an advance of 10c. per share in New York and Alleghany, the petroleum list is weaker. The market is more active than for a long time past, on the 19th inst, 200 shares of United Petroleum forms changed hands at $37—on the day following, 500 Cent. Pet. sold at 65 ; to-day two sales of Home took place, one of 100 and the other of 300 shares at $1.45 a very favorable record compared with our usual reports. We give the list below.

PETROLEUM STOCKS.

Benneboff Run	15	25
Bergen Coal and Oil	—	—
Bliven Oil	—	—
Blood Farm	—	—
Breevoort	25	35
Buchanan Farm	30	—
Central	55	—
Clinton	—	—
Home	1 40	1 55
National	—	—
New York & Allegheny	1 00	—
Northern Light	30	—
Phillips Pet	—	15
Pithole Creek	—	1 00
Rathbone Oil	20	—
Rynd Farm	30	—
Second National	—	40
Sherman & B	—	—
Tarr Farm	—	—
United Petroleum Farms	32	39
United States	—	—

The First American Locomotive.

It is said that the first locomotive *built* in this country was a small experimental machine, designed by Mr. PETER COOPER, now of New York, and built at the Mount Clare Works, in Baltimore, during the summer of 1829, for the Baltimore and Ohio Railroad. This engine was a mere experimental machine, the boiler being only about 20 inches in diameter and 5 or 6 feet high. There was but one cylinder, of 3¼ incher diameter and 14½ inches stroke. This locomotive was built to show that roads with curves as short as those on the Baltimore ond Ohio Railroad could be operated with locomotives. The engine was, however, only an experiment, and was never used for any other purpose.

The first locomotive which was ever used in this country was one ordered for the Delaware and Hudson Canal and Railroad Oompany, by JOHN B. JERVIS, Esq., and imported from England in 1829. Three engines were ordered at that time. The first which arrived was the "Stourbridge Lion," which was publicly exhibited in New York for some weeks, and was then shipped to Honesdale, Pa., where it made its first trial trip on Saturday, August 8, 1829. Mr. HORATIO ALLEN, then an assistant to JOHN B. JERVIS, "stood alone upon the engine, and with his own hand opened the valve that gave the impulse to the driving-wheels that made the first revolution upon a railroad in America."

97TH AUCTION SALE.

120,000

TONS SCRANTON COAL,

ON WEDNESDAY, DEC. 27TH, 1871.

NEW YORK, December 20, 1871.

The DELAWARE, LACKAWANNA AND WESTERN RAILROAD COMPANY will sell, by Messrs. JOHN H. DRAPER & Co., Auctioneers, at the Company's Sales Room, 26 Exchange Place, corner of William street, New York, on Wednesday, Dec. 27, at 12 o'clock, noon,

120,000 TONS

of COAL, from the Lackawanna regions, of the usual sizes, deliverable at their Depot, Elizabethport, N. J., during the month of January, 1872.

The sale will be positive; each lot put up will be sold to the highest bidder ; no bids, in any form whatever, being made for account of, or on behalf of the Company. The conditions will be fully made known at the time of sale.

TERMS : Fifty cents per ton, payable in current funds, on the day of sale, and the balance, within ten days thereafter if required, at the office of the Company.

SAMUEL SLOAN, President.

CUMBERLAND COAL,

MINED BY THE

CONSOLIDATION COAL COMPANY,

Of the best quality for manufacturing, steam generating, and domestic purposes.

Orders received by the Cargo at

New York Office, 71 Broadway.

New England Agency,

STEVENSON & PIERSON,

48 Kilby street, Boston.

Baltimore and Georgetown Agency,

G. MEREDITH, South Gay street, Baltimore,

mch7;tf

AMERICAN

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Total cost, bound, to subscribers only, $32, a saving of over more than $100 over similar works.

A fifty cent specimen number, containing forty pages will be sent free for 10 cents. Agents and Canvassers wanted. Sold only by subscription. Address

dec12:3m T. WOODEL ZELL, Proprietor.

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DEPARTMENT OF POPULAR SCIENCE.

The Forces of Life.*

There have been writers who affirmed that the pyramids of Egypt were the productions of nature, and in his early youth ALEXANDER VON HUMBOLDT wrote an essay, with the express object of refuting this notion. We now regard the pyramids as the work of men's hands, aided probably by machinery of which no record remains. We picture to ourselves the swarming workers toiling at these vast erections, lifting inert stones, and, guided by the volition, the skill, and probably at times by the whip of the architect, placing the stones in their proper positions. The blocks in this case were moved by a power external to themselves, and the final form of the pyramid expressed the thought of the human builder.

Let us pass from this illustration of building power to another of a different kind. When a solution of common salt is slowly evaporated the water which holds the salt in solution disappears, but the salt itself remains behind. At certain stages of concentration the salt can no longer retain the liquid form; its particles, or molecules, as they are called, begin to deposit themselves as minute solids, so minute, indeed, as to defy all microscopic power. As evaporation continues, solidification goes on and we finally obtain through the clustering together of innumerable molecules, a finite mass of salt of a definite form. What is this form? It sometimes seems as a mimicry of the architecture of Egypt. We have little pyramids built by the salt, terrace above terrace from base to apex forming thus a series of steps resembling those up which the Egyptian traveller is dragged by his guides. The human mind is as little disposed to look at these little salt crystals without further question as to look at the pyramids of Egypt without inquiring whence they came. How, then, are those salt pyramids built up?

Guided by analogy, we may suppose that, swarming among the constituent molecules of the salt there s an invisible population, guided and coerced by some invisible master, and placing the atomic blocks in their positions. This, however, is not the scientific idea, nor do I think your good sense will accept it as a likely one. The scientific idea is that the molecules act upon each other without the intervention of slave labor; that they attract and repel each other at certain definite points, and in certain different directions, and that the pyramidal form is the result of this play of attraction and repulsion. While then the blocks of Egypt were laid down by a power external to themselves, these molecular blocks of salt are self-posited, being fixed in their places by the forces with which they act upon each other.

I take common salt as an illustration, because it is so familiar to us all; but almost any other substance would answer my purpose equally well. In fact, throughout organic nature, we have this formative power, as FICHTE would call it—this structural energy ready to come into play, and build the ultimate particles of matter into definite shapes. It is present everywhere. The ice of our winters and of our polar regions is its hand-work, and so equally are the quartz, feldspar, and mica of our rocks. Our chalk-beds are for the most part composed of minute shells, which are also the product of structural energy; but behind the shell, as a whole, lies the result of another and more subtle formative act. These shells are built up of little crystals of calc-spar, and to form these the structural force had to deal with intangible molecules of carbonate of lime. This tendency of matter to organize itself, to grow into shape, to assume definite forms in obedience to the definite action of force, is, as I have said, all-pervading. It is in the ground on which you tread, in the water you drink, in the air you breathe. Incipient life, in fact, manifests itself throughout the whole of what we call inorganic nature.

The forms of minerals resulting from this play of forces are various, and exhibit different degrees of complexity. Men of science avail themselves of all possible means of exploring this molecular architecture. For this purpose they employ in turn as agents of exploration, light, heat, magnetism, electricity and sound. Polarized light is especially useful and powerful here. A beam of such light, when sent into the molecules of a crystal, is acted on by them, and from this action we infer with more or less clearness the manner in which the molecules are arranged. The difference, for example, between the inner structure of a plate of rock-salt and a plate of crystalized sugar or sugar-candy is thus strikingly revealed. These differences may be made to display themselves in phenomena of color of great splendor, the play of molecular force being so regulated as to remove certain of the colored constituents of white light, and to leave others with increased intensity behind.

And now let us pass from what we are accustomed to regard as a dead mineral, to a living grain of corn. When it is examined by polarized light, chromatic phenomena similar to those noticed in crystals are observed. And why? Because the architecture of the grain resembles in some degree the architecture of the crystal. In the corn the molecules are also set in definite positions, from which they act upon the light. But what has built together the molecules of the corn? I have already said, regarding crystalline architecture, that you may, if you please, consider the atoms and molecules to be placed in position by a power external to themselves. The same hypothesis is open to you now. But, if in the case of crystals you have rejected this notion of an external architect, I think you are bound to reject it now, and to conclude that the molecules of corn are self-posited by the forces by which they act upon each other. It would be poor phi'osophy to invoke an external agent in the one case, and reject it in the other. * * *

But I must go still further, and affirm that in the eye of science the animal body is just as much the product of molecular force as the stalk and ear of corn, or as the crystal of salt or sugar. Many of its parts are obviously mechanical. Take the human heart, for example, with its exquisite system of valves, or take the eye or the hand. Animal heat, moreover, is the same in kind as the heat of a fire, being produced by the same chemical process. Animal motion, too, is as directly derived from the food of the animal, as the motion of Trevethyck's walking-engine from the fuel in its furnace. As regards matter, the animal body creates nothing; as regards force, it creates nothing. Which of you by taking thought can add one cubit to his stature? All that has been said regarding the plant may be re-stated with regard to the animal. Every particle that enters into the composition of a muscle, a nerve, or a bone, has been placed in its position by a molecular force; and unless the existence of law in these matters be denied, and the element of caprice be introduced, we must conclude that, given the relation of any molecule of the body to its environment, its position in the body might be predicted. Our difficulty is not with the quality of the problem, but with its complexity; and this difficulty might be met by the simple expansion of the faculties which man now possesses. Given this expansion, and given the necessary molecular data, the chick might be deduced as rigorously and as logically from the egg as the existence of Neptune was deduced from the disturbances of Uranus, or as conical refraction was deduced from the undulatory theory of light.

* By Prof. JOHN TYNDALL. Extracted from an address on the Methods and Tendencies of Physical Investigation.

The Probable Exhaustion of Bessemer Pig Iron in England.

It appears that our manufacturers of Bessemer steel can thus far not well do without a peculiar kind of English pig iron, which, by its freedom from phosphorous, is especially adapted for their purpose. It is well known that a quarter of one per cent. of this material makes pig iron unfit for the Bessemer process. All that our metallurgical chemists have thus far been able to accomplish is to reduce the use of the imported iron to a minimum, in which direction Professor MAYNARD, late of the Rensselaer Polytechnic Institute at Troy, has been eminently successful. In the meantime the West is looking up, and in Indiana pig irons are produced from the Missouri ores, by the use of Indiana block coal, which are claimed to be equal in quality to the English iron referred to above, but which, it appears, cannot well compete with the English product in regard to cost. Recently, however, we hear from England that the fear is expressed there that as the demand for this particular pig iron is increasing so rapidly, the ores from which it is obtained will soon give out. That this is more than a mere assertion made for the purpose of driving up the prices is sure from the fact that this pig iron is only obtained from the red hematite found in the carboniferous limestone in two localities near Ulverston in Lancashire, and near Whitehaven in Cumberland. We see now that the question has attracted the attention of the Iron and Steel Institute in England, and they have appointed a committee of experts to report on the distribution of the English iron ores, especially referring to the deposits of red hematite, and this committee has now presented a preliminary report confirming the fear. Consequently application has been made to the Director-General of the Geological Survey, requesting that the officers under him should be instructed to report on the existence of other deposits, if such may have come to their knowledge. This, however, was either refused, or the knowledge did not exist, at least no favorable information has been gained in this direction.

If, then, by these facts, the prices of this ore and of the pig iron made from it are going to be raised in Great Britain, the Indiana Bessemer pig may be not only able to compete with the English, but those interested may earn great profits, and the proposed plan to erect Bessemer works in Brazil, Indiana, or in that neighborhood, will be stimulated by this fact, as well as by the well founded and highly favorable reputation of those concerned in such an important enterprise.

We need not say that iron rails should be used no longer, but that the example of those railroad corporations who recently have been relaying all their tracks with Bessemer steel rails should be universally followed.

NEW YORK. P. H. VAN DER WEYDE.

Papers Read Before the American Institute of Mining Engineers.

We regret our inability in the present number to continue the publication of the papers read before the American Institute of Mining Engineers at their recent meeting at Troy. We shall, however, continue their publication in our next number and finish them as soon as possible. In fact the only ones likely to be left unfinished are those on "Smelting in Nevada and Utah," by Mr. ANTON EILERS, and on the "Explosion of a Blast Furnace," by Mr. EDMUND C. PECHIN, the manuscript copy of which we have not yet received.

Mr. KENNETH ROBERTSON, whose paper on "Blast-Furnace Slags" is in course of publication, desires to correct a statement in that portion of his article which appeared in our last number. The error referred to will be found near the top of the second column of page 386. The phrase, "it is *siliceous* slags which corrode the furnace lining" ought to have been, "it is the *basic* slags which corrode the furnace lining." We are happy to say that the error is not ours.

All the papers read before the Institute evince a degree of care in their preparation, and logical arrangement, and a precision of thought on the part of their authors which speaks volumes for the future of the young and vigorous association. Many of these papers show also the extremely practical views which their authors hold concerning technical subjects that will certainly recommend them to our readers.

THE ENGINEERING AND MINING JOURNAL.

ROSSITER W. RAYMOND, Ph. D.,
WILLARD P. WARD, M. E.,
Editors.

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Mint Matters.

We trust that the elaborate and well considered bill, codifying and consolidating the mint laws of this country, which failed, for lack of time, to pass the last Congress, will be revived and carried through during the present session. Its provisions have been thoroughly discussed, and have met with general acceptance; and there is no reason why it should not become a law.

The fact that Judge Kelly, the Chairman of the Coinage Committee of the House, will have charge of the bill, is highly favorable to its success. Mr. KELLY is a power in Congress; and in all matters relating to the mints and coinage of the country, his clear views and forcible expositions command attention and respect, even from political opponents, and from that portion of his own party who do not share his strong protectionism in tariff questions.

One great benefit to be expected from the passage of the bill will be the creation of a department, dealing with all the questions of mints and coinage, and presided over by a director. The necessity of this no one can doubt, who has watched the progress of the last few years among civilized nations in respect of their coinage and currency. We need a department of government where every pressing problem of this sort, domestic and international, may be intelligently studied and solved.

Germany has now, it is reported, adopted a new national system, based upon the mark or nearly the English shilling, as a unit. The worst point in the system is the retention of a double standard, gold and silver. This is undoubtedly a mistake, and one which will, ere long, we trust, be rectified. Meanwhile, it is evident that the French monetary supremacy has departed; and we may rejoice that this country was not hurried into prematurely adopting an international system, bad in itself, and now, it appears, not likely to become general in Europe.

The true international system will be, as we long ago pointed out, an uniform fineness of gold coinage, with the weights stamped on the coins, and an agreement among governments that such coins shall be current according to weight. The metrical weights are the most convenient for this purpose, though inconvenient for many others. But the recent action of Germany tends to complicate the question, and requires of our Government greater caution in making changes in our present standards.

Public Documents.

As usual somebody in Congress moves to abolish the whole public document system. As usual, probably, nothing will come of the buncombe proposition. It is so much easier to abolish than to regulate, and it is so much easier to smother a crude plan in Committee, than to amend it into a reasonable shape, that we do not wonder at these regular and fruitless displays of cheap statemanship. The evils of the present system are certainly great. Involving a great expenditure of money, it very imperfectly answers the end of its existence. We are deluged with public documents but when we want to find a particular one, it is not to be found. Yet with all its evils, this system is much better than would be its unconditional abolition. The London *Saturday Review*, ascribes to the abundant public documents of the United States the general practical success of our legistation. Certainly there is no country in the world where the citizens are so well informed concerning the different departments of government. The newspapers undoubtedly do a great deal, but the newspapers themselves make constant use of public documents.

The reform which is needed should not sacrifice the great good sought by the present system. What we would recommend is a partial adoption of the English plan, by which public documents of interest and value may be kept on sale by the Congressional printer. The reports of the U. S. Commissioner of Mining Statistics, for instance, though published in large editions and widely circulated, are now virtually out of print. One must hunt for them in second-hand book stores. There is no reason why they should not be for sale at a moderate price, but they have been given away largely to people who did not use them, and now those who do need them have to go without them.

Let us have a reform, not destroying the system of publishing information for the people, but perfecting its distribution.

The Recent Experiments with Boilers.

In another column will be found an abstract of the report of three of the leading engineers of the navy, concerning the trials of steam-boilers recently made at Sandy Hook.

We may, perhaps, in view of the conclusions derived from these tests, be pardoned if we indulge in a little self-congratulation over the correctness of the views which we have from time to time maintained concerning the cause of boiler explosions, and which now seems to have been fully established. We have given considerable space to this subject, because it is, actually, one of vital importance, and because we believed that the general diffusion of correct notions regarding it, would be of immense benefit in preventing the repetition of such fearful disasters as startled and horrified the public in July last, when the boiler of the Westfield exploded, hurling into eternity a hundred souls.

We are now informed upon excellent authority that that explosion may be easily accounted for upon the natural hypothesis, that it was due to a pressure of steam greater than the boiler was able to withstand. A reference to the editorial articles which appeared in our journal at the time, will show that this is the very position we then took, when the self-constituted experts were ventilating before the coroner's jury their views on unequal expansion and contraction, low water, electricity, the formation of explosive gases and many other far-fetched solutions of a problem which presents but few difficulties to the intelligent and candid inquirer.

We hope that, for the present at least, we shall hear no more from these gentlemen. True science always accepts, as most reasonable, the simplest solution of a problem in natural philosophy or mathematics; these investigators, however, seem to have determined to act on the diametrically opposite principle, and thus from the very foundation to establish a philosophy of their own. If the facts do not agree with their theory, so much the worse for them—not the philosophers, but the facts, of course.

We have given these gentlemen a large amount of space for the exposition of their notions, and they certainly cannot complain that we have in any way treated them unfairly, even if we have sometimes been compelled to point out the fallacies of their arguments, and the injustice of their conclusions. As we before remarked, we are willing now to drop the subject, and the advocates of conflicting theories have so little ground left to stand on, that, to use a mild expression, it would be in excellent taste for them to do likewise.

New Publications.

THE SUBTERRANEAN WORLD, by Dr. GEORGE HARTWIG. *Author of "The Sea and Its Living Wonders," "The Tropical World," "The Polar World," and "The Harmonies of Nature." With three Maps and Numerous Engravings on Wood.* New York: Scribner, Welford & Co. 1871. 8vo, 522 pp. Price, $8.

MANY books have appeared within the last few years, in which the facts of Nature are grouped with a view to picturesque effect; and the great popularity of such books is a proof that the reading public is eager to grasp the results of scientific investigations, presented in a style free from technical abstruseness. The frequent fault of writers of this school is, that they overdo their work, mistaking the real nature of the popular hunger, and offering more sauce than meat. A man may be so poetical about his statements as to obscure their meaning or destroy their truthfulness; or he may select from Nature only her "pretty" facts, and leave out the necessary links for a complete view. Many books are like "popular" lectures on science, all fire-works and show, to make the ignorant stare and the judicious grieve. They prostitute science, and hinder the progress of true knowledge among common men. What people want is to be taught, not tickled; and it is quite possible, though not easy, to combine logical, progressive instruction with the highest degree of entertainment.

We are led to this train of thought by comparing Dr. HARTWIG'S book on "The Subterranean World" with SIMONIN'S "Underground Life," published some years ago. The latter is a magnificent volume, in paper, typography and illustration, but it is everywhere marred with "sensationalism," which renders its solid information distasteful to the reader. Thus we have chapters on "The Field of Battle," meaning the coal-mine; "The Perilous Passage," meaning the shaft; "The Soldier of the Abyss," meaning the miner; "To-day and To-morrow," meaning the supply of coal for the future; "The Princes of the Mineral Kingdom," meaning metalliferous ores;

"Eureka," meaning the discovery of different mines; "The Sisters of the Catacombs," meaning—Heaven save the mark!—everything from the stone and bronze periods down to the mining of the Phœnicians, Carthaginians, Romans and Arabs; and "The Phalanx of Mines," meaning nothing particular, except the leavings of the other chapters. In short, "Underground Life" is a gorgeous picture-book, and little more. It reads as if the illustrations had been got together first, and the text supplied to fit them. If M. SIMONIN got the red ribbon of the *Legion d' Honneur* for writing it, as has been reported, then he got what the engraver and lithographer better deserved.

It is refreshing to turn from such confectionery to the not less attractive and far more valuable work of Dr. HARTWIG. This book has lain on our table for a month; and if the publishers wonder why it has not been earlier noticed, let them hereby be informed that we have been really reading it, and that our favorable opinion of it is based upon more than a look at its handsome type and engravings. We pronounce it a book, fascinating for perusal and useful for reference. It is not a mere hasty selection from the abundance of nature; it is a skillfully constructed epitome of present knowledge on the subject of which it treats. In flowing and pleasant style, it outlines the topics of geological revolutions, fossils, subterranean heat, subterranean upheavals and depressions, subterranean waters and artesian wells, volcanoes, geysers, hot springs, earthquakes, landslips, caves and cave-rivers, cave-dwellers, cave-temples, cave-tombs, cave-relics, tunnels, mines, quarries, metals, ores and precious stones, surrounding the discussion of each theme with abundant historical and natural illustration, but not overloading it with cheap rhetoric and tawdry poetry. The consequence is, that the book kindles the imagination far more than if the author paused at every description to "rub in" the appropriate sentiment, or hitch on a thoroughly inappropriate piece of eloquent rubbish. Finally, a full and careful analytical index makes the vast array of useful facts available for instant reference.

MINING SUMMARY.

California.

SAN DIEGO MINES.

Correspondence of the *Scientific Press* of December 9.

I told you last week that the De Frees' mill had commenced crushing a lot of 50 tons of ore from the Big Blue ledge (owned by EVANS & STRATTON) that was estimated to return $50 per ton; but when they cleaned up, much to the surprise of the lucky owners, it returned $112 per ton. The Owens' lode still shows the large ledge of fine ore spoken of in my last, and certainly has one of the finest ledges in the State. The California is still improving in size and quality; they will soon commence drifting, to take out ore for crushing. The Van Wert Co. are having ore crushed at the De Frees' mill, which from appearances, will keep up the reputation of that mine for good ore, never having had ore crushed that yielded less than $22 per ton.

Since the Big Blue rock was cleaned up, there has been a great deal of prospecting in that neighborhood, and THOS. STRATTON, one of the owners in the Big Blue, found a ledge showing rich in free gold, about 300 feet above the Big Blue. COL. DE FREES also found one on the same hill, the same day, showing as good prospects as any of them. Mr. JOSEPH PARSONS found a ledge on High Peak Hill, last week, that prospects 25 cents to the pound. The Stonewall, CAPT. FRANC'S mine is looking as well as ever. A new and rich strike was made last week in the Antelope mine, Banner District. The Madden Co. and Kentuck are still taking out rich ore. The Blue Ledge, owned by CAPT. DYE & Co., was leased last week to O'BRIEN & Co. This ledge has as rich ore as any found in the district, and is supposed by many to be on the same ledge as the famous Golden Chariot, or King mine, being on the same range, and the ore being very similar. The Golden Chariot improves every foot they sink on it; the rock now being taken from the mine, judging from the last crushing of $156 ore, will go $200. The Redman mine, under the supervision of A. W. WHITNEY, Esq., has again commenced hoisting rock; the new engine and pump, received from San Francisco last week, having been set to work, frees the mine from water without any trouble, and they will soon have ore enough to commence crushing. Every thing now wears a lively appearance in San Felipe Canon.

We have not yet found a ledge that shows ore worth $52,000 per ton, like the Gwinn mine, in Calaveras; but we challenge the coast to show a district that can show as many ledges of $25, $50, $100, $200, or $500 ore, as Julian and Banner Districts of San Diego county, Cal. We want more capital to assist in developing our mines.

Montana.

The *Rocky Mountain Gazette* of November 27, has a correspondence from Prickley Pear, dated November 7, from which we extract the following items:

It has always been the opinion of the miners that the bed of the Prickley Pear creek would prove some day to be rich; and that in time it would be worked from the mouth of McClellan to Jefferson City, some fifteen miles, as the bars on both sides have been worked more or less since 1862, some of them having proved rich and some of them having paid only fair wages, but taking them all together, they have produced a large amount of gold; but owing to the flatness of the creek, and the supposition that it is very deep to bed-rock, no one has had the courage to open it, or if the courage was not lacking, the cost was, so to this day it remains a secret as to what is in it; but from what I saw yesterday, it will not be long before the bed-rock will be in sight, and the often asked question, "Does the bed of the creek pay?" will be answered. A company from the other side of Missouri, having decided to prospect it a few weeks since, came over with a steam pump and a gang of hands and went to work in earnest; and yesterday at the request of Mr. THOMAS WRIGHT, one of the proprietors and managers of the works, I went down the gulch to see what was going on. There I met Mr. JAKE CHRISTMAN the engineer, also one of the owners, who showed me over the ground; and I must say I was very agreeably surprised at what I saw They have a shaft 12 by 22 feet down 16 feet; and a better or more substantial piece of work I never saw. Near by were large piles of wood prepared for the engine; also huge timbers ready for the shaft, together with large supplies of spiling. The company seems determined to make a thorough job of it, and feels very sanguine of success. Parties have already staked off a number of claims, and if good pay should be struck, this place will again be in a flourishing condition, as there is ground enough to keep a large number of hands at work for a number of years to come. There is getting to be a considerable excitement here about tin, there having been quite an amount of tin ore found here, from which we saw several bars of pure metallic tin—altogether weighing some six pounds—reduced by M. H. HILL, of this place. There is no doubt in my mind of there being large deposits of tin in this vicinity; and the man who finds a tin lode here will surely be in luck.

Arizona.

From the *Miner* of Nov. 25.

From Bradshaw the accounts picture but little new or important. Except on the Tiger lode work has been pretty generally suspended for the present, and will not be renewed until spring. On the Tiger, however, some eight or ten men are still at work drifting and tunneling at the bottom of the principal shaft.

At a point nearer Prescott much activity is being evinced, in the work of opening up new discoveries. Messrs. KELLY, ALEXANDER and others, have established a mining camp in Walker District, eight miles from Prescott, and, for the past three weeks, have been sinking on the Cornucopia, Prescott, Bismarck and other lodes. We have heard it stated that Mr. VORSHEY, some five or six weeks ago, effected a conditional sale of one of the above-named ledges in San Francisco; and having been informed regarding the conditions proposed, and knowing that the same can be readily complied with by the owners of the mine, we are inclined to think that the sale will be effected. A party of men lately in the employ of Messrs. NOYES & CURTIS, who own an extension on the Benjamin lode, Walker District, are preparing to sink a shaft thereon, and are probably even now at work.

The new Pinal discovery has created an intense excitement throughout the whole Gila and Salt River country, and even the mining atmosphere of Prescott is quite sensibly affected by it. Well, this is not a matter to occasion surprise; for if the Pinal mine should prove as rich as it is represented, it will eclipse any other mine ever discovered in this or any other country. Our Florence correspondent says a party of miners left that town for the new mine, on the 11th inst., and another party, consisting of men from Tucson and Phœnix had just arrived and were making preparations to follow. Specimens of the rock brought to this town last week, are pronounced equal, if not superior, to any ever before exhibited here.

Mr. NILES arrived from Wallapai District last week, and through him we have an account of the proceedings there. The Lone Star mill, belonging to MEECHEM & HARDY, commenced work on the 10th. The ore crushed was from the Lone Star lode.

A new ledge which promises a rich future, has been discovered in the Wallapai mountains, 30 miles from Mineral Park, and 16 miles from Beale's Springs.

CLARKE & Co., about the 1st inst., shipped 5 tons of ore to San Francisco, which yielded, according to the returns received, $2,200 to the ton.

Capitalists from San Francisco have visited the district, and, in some instances bought large quantities of ore at the mines, shipping the same to San Francisco at their own expense.

Immigration continues at a pace almost unprecedented. Houses are being erected and the place is rapidly assuming the appearance of thrift, enterprise and permanence.

Idaho.

From the Owyhee *Avalanche*.

LOCAL MINING RECORD.

In making our usual trip over War Eagle Mountain this week in search of mining items, we first came to the north discovery of the Oro Fino, where several hundred tons of ore are piled up on the yard ready for transportation to the mill; and from the great quantity of that ore already at the Owyhee mill, it would seem as though there were but little show for that mill to get even on ore this winter, as they are now taking from the mine about 25 tons per day. We also notice both the ore house and shutes full of ore taken from the north end of the south discovery of the Oro Fino, besides every shute in that part of the mine full, only awaiting the clearing of the outside shutes to bring to the surface the ore already broken down in the mine. This work is carried on under the direction of JAMES THOMAS, foreman, who has charge of the north discovery, for W. D. WALBRIDGE, Superintendent.

The Little Giant, lying about 50 feet east of the Oro Fino, is also worked under the management of Mr. THOMAS, for another company. This mine is being worked at three points, viz.: A cross-cut run from the Oro Fino tunnel, sinking the main shaft and stoping in a tunnel driven from the surface.

We next arrived at the south end of the South Oro Fino Discovery where we found on the yard over a hundred tons of fine looking ore. A drift is already in from the surface 160 feet, with stopes following it up. At this point a shaft is also down about 75 feet on the ledge, which is from two to three feet wide both in shaft and drift. This is the mine bought by MINEAR of W. E. PHILLIPS, and, if he doesn't make a fortune out of it, the most promising indications will prove a failure.

We next visited the Ida Elmore, but did not go down into the mine, although we were informed by the Superintendent, Mr. MINEAR, that the vein in both the 6th and 7th levels is now improving, and that he now feels certain of getting into a good body of ore, especially in the latter level. After being assorted in the ore house, the ore is being put into the shute ready for hauling and will be milled during this month. Mr. MINEAR also informs us that he intends soon to commence sinking the main shaft in order to strike the rich body of ore lately discovered in the 8th level of the Golden Chariot, only 100 feet below the bottom of the Elmore shaft.

Calling next at the Golden Chariot, under the management of foreman FORD, we found everything in tip-top shape, although an accident to the hoisting apparatus had recently somewhat delayed operations in that mine. So far as is yet known the recent strikes in both the 5th and 8th levels are rich and extensive, and every indication leads to the belief that the Chariot is better, so to speak, than it ever was. Within three days after the strike became known in San Francisco, the stock went from $5½ to $30. Additional hands have been put to work, drifts have been started and the 7th level winze will immediately be connected. The depth of the 8th level is 690 feet.

The Minnesota next came under our observation. Its arrangements for working are second to none on the mountain, except in relation to steam-hoisting works,

which Superintendent MINEAR informs us will be on hand at an early day in the spring. He is taking out, at least, $50 ore, and from one point we think it will yield $75 per ton.

The Mahogany shaft is going down for the 5th level as fast as six good miners can sink it, and since a water tank has been put in under the 4th level, the shaft is being sunk nearly a third faster. We are informed by Mr. JOHN JEWELL, the foreman, that he will cut the ledge of the 4th level about the last of this month. Mr. JEWELL seems to be a first-rate miner, as everything about his mine appears to be in its place and a place for everything.

The South Chariot mine is not worked very extensively just now. Two drifts are being run in on the ledge north from the shaft in the 1st and 4th levels respectively. Some very fine ore has been struck in the 4th level drift during the last few days, which is being put in the Mahogany ore house and will be crushed about the first of next month. That now coming out reminds one of old time Chariot and Mahogany ore—at least Superintendent MINEAR thinks that way strong enough to pay $40 a ton for it. That being the case, with the size of the vein, there is not much to fear about the future of the South Chariot. The Mahogany hoisting works do the hoisting for both mines, but MINEAR says that if South Chariot improves, as for the last few days, he will start up its own hoisting works about January 10th, as it would be impossible to do all the work through the Mahogany mine.

The War Eagle shaft is down about 200 feet at the bottom of which the vein is 20 inches wide, yielding fine looking ore. Quite a large lot of the ore has been hauled to the Owyhee Co's mill for crushing.

The Sands Bros. are now taking a very rich quality of ore from the south end of the Illinois Central—richer indeed than is being taken from any other mine on that side of the hill, except that taken out by Mickey & Co. from the Empire.

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This is about the season of the year to which we have always looked forward as the period at which we could make something like an accurate estimate of the Omineca mines. During the excitement attendant on the gold discoveries in that quarter, the contradictory stories about their richness put in circulation by different parties, prevented a disinterested person from forming anything like an accurate conclusion as to the value of the mines. The close of the mining season has, however, brought with it the experience of two thousand miners, traders and packers, and the result, we are sorry to say, is not so favorable as we could wish. Omineca as a gold producing region has its value; but, so far as is known, it is more likely to employ hundreds than thousands. We have no wish to draw "blue" pictures of the mines; neither do we intend to overdraw the picture; but from present appearances, not more than three or four hundred men will be found mining and trading in Omineca next year. If between now and spring a "strike" be made there, like the discovery on Williams or Antler creeks, a rush may be expected, but not otherwise. Hence, Omineca, like Blue Bend, Rock Creek and Kootenai, will remain a small camp and will possibly pay those well who may from year to year remain there. That it is a gold bearing region is a fact settled beyond a question. The estimate made, however, of its richness has been very far from popular expectation. Even the stories of its virgin silver have not brought any discoveries of argentiferous ores, beyond stray lumps in the streams, and that apparently is a characteristic of all our river and mountain torrents from Chemainis to Stickeen. Where the matrix of the silver is, no one knows. As an agricultural country, the Omineca is reported below par; at least so the prospectors picture it. As a fur bearing region it is reposted one of the best in the Province. We may then, speaking from such facts as we can collect, put down Omineca as producing gold and fur. By uniting those two sources of industry, the northern mines may long employ several hundred miners and fur-hunters. But new developments will be required before anything like a large population will be likely to return to it.

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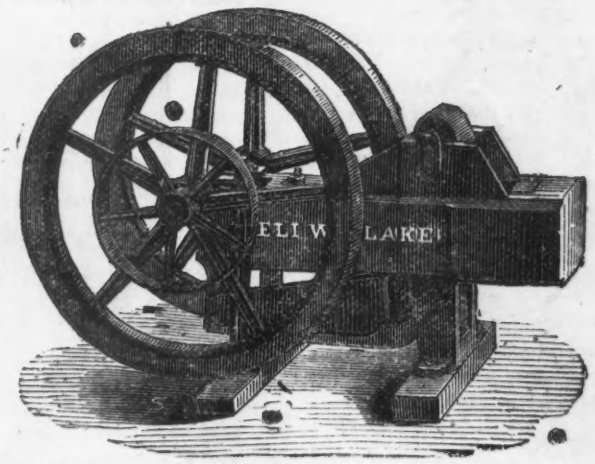

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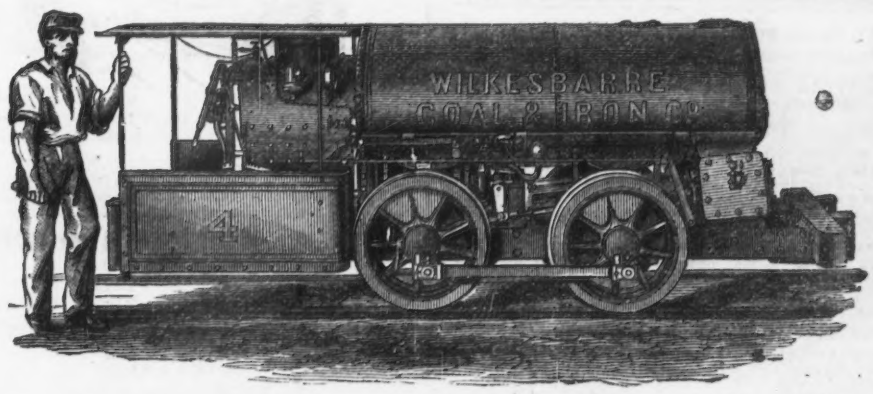

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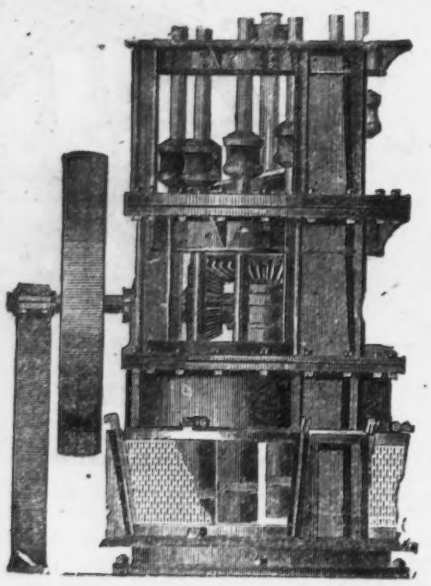

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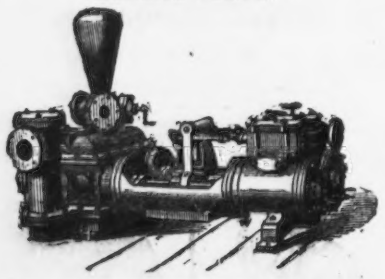

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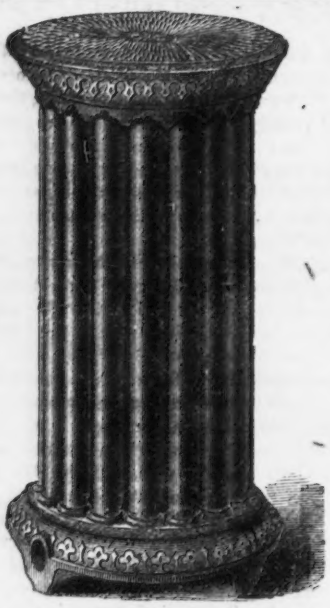

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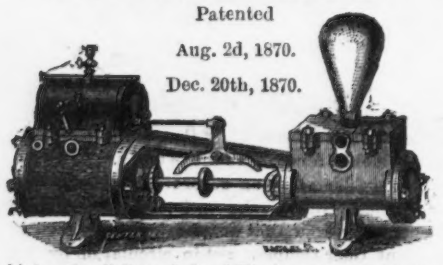

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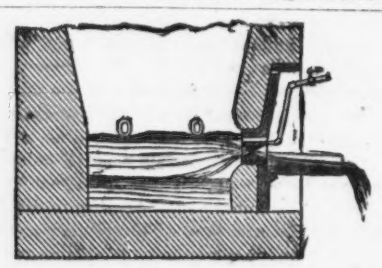

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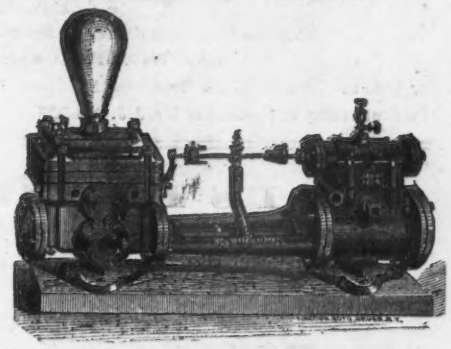

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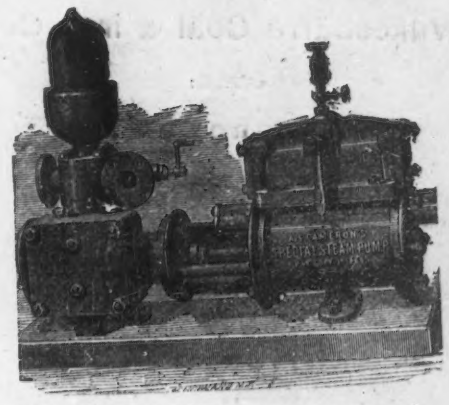

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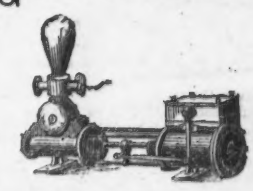

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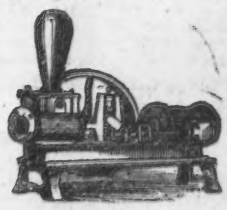

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COURTLANDT PALMER, JR., Secretary.
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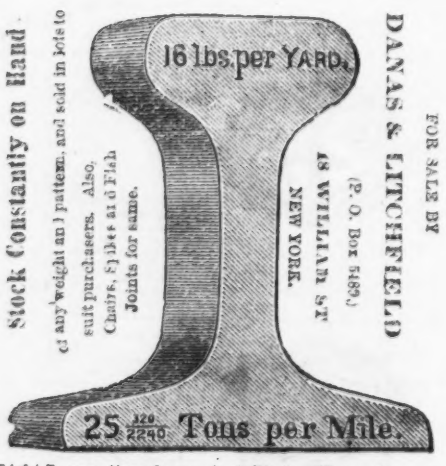
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